August 22, 1951.

Dr. Bernard D. Davis,
Marine Biological Laboratory,
Woods Hole, Mass.

Dear Bernie:

The culture Zinder sent you, SW-435, was derived from a wild type labelled "22" (our LT-22), a "phage-type", received from Lilleengen (Acta path. micr. scand., Suppl. 77).

In order to work over other fertile strains of E. coli, we will undoubtedly run into aromaticless mutants, and have some already. There are also some in other Salmonella strains, and a tryptophaneless and a phenylalanineless in Pseudomonas fluerescens(which is easily handled on the same media as E. coli). If any of this would be of interest to you, please let me know.

Do you think a test for dominance of sulfonamide resistance would be feasible. The beauty of S^r is that there is a single step mutation that gives complete resistance. If you would be willing to furnish Sf^r mutants in suitable stocks (preferably W-1177), I'd be glad to try to put the marker into a heterozygote. I had shied away from it thinking that the characterization and genetics might be messy if, as I thought a priori there were a multi-step situation.

Esther and I have just about completed experiments on indirect selection of S^r and V_1^r mutants, using replica plating. These mutations indisputably occur in clones, and pure S^r cultures were obtained by successive enrichment of populations whose history at no time included exposure to sm. I think I taked to you about this at CSH: the procedure is to pick the site on a plain agar plate, heavily inoculated and grown, corresponding to an S^r colony on a replica to sm medium. A more dilute plating is used for the next step, giving about 100-fold enrichment at each stage. The replica plating works beautifully for picking up auxotrophs (when penicillin hasn't done a perfect job), and is also helpful in characterization. If you should see Harry Eagle, give him my best- and then tell him about the indirect selection, would you. Not that this excludes his story as another phenomenon.

We've had a remarkable summer, with alternate days of cold-wet, and cool-dry weather: not the best for corn. Are you coming to Minneapolis next month?

Sincerely,

Joshua Lederberg